USDA
United States Department of Agriculture

Natural Resources Conservation Service Plant Guide

PRAIRIE CORDGRASS

Spartina pectinata ex Link

Plant Symbol = SPPE

Common Names: broadleaf; cordgrass; fresh water cordgrass; marsh grass; prairie cordgrass; ripgut; slough grass; tall marshgrass

Scientific Names: Spartina michauxiana Hitchc.; *Spartina pectinata* Bosc ex Link var. *suttiei* (Farw.) Fernald; *Sporobolus michauxianus* (Hitchc.) P.M. Peterson and Saarela

Photograph of prairie cordgrass inflorescence. Photo taken at the Big Flats Plant Materials Center in Big Flats New York, 2013

Description

General: Prairie cordgrass is a warm-season perennial grass. It is native to the tall grass prairies of most of the United States and Canada. It has an average height of 3 to 8 feet (Johnson and Larson, 1999). The leaf blades, 0.1 to 0.5 inches wide and up to 30 inches long, are coarse, very tough, and thick. The margins of the leaf are serrated and sharp. Stems are stiff. It is strongly rhizomatous with very tough, scaly rhizomes. Strong rhizomes with the ability to grow 5 to 10 feet per year separate this grass from the other desirable native warm season grasses (Bush, 2000). Seedheads are composed of 10 to 20 spikes attached to the main stem. Each spike has up to 40 spikelets, all growing in two rows on the side of the spike away from the stem. The seeds are flat, paper-like with barbed awns that attach firmly to fur or fabric. There are approximately 183,000-197,000 seeds per pound (Bush, 2000).

Distribution: Prairie cordgrass grows throughout the Northeast, Great Lakes, and Midwest States, as well as most other states throughout the country. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Habitat: Prairie cordgrass is found in wet meadows, sloughs, potholes, and drainage ways. It also occurs in floodplains and back dune areas (Bush, 2000). It is associated with various species including sedges and rushes.

Adaptation

Prairie cordgrass has a broad climatic adaptation. It will grow in seasonally dry sites, tolerates alkaline conditions and high-water tables but is intolerant of prolonged flooding. The rapid seedling development of this species enables it to avoid frost-heaving problems on wetter soils (Bush, 2000). It will grow on a wide array of soil types. Anderson et al. (2014) demonstrated that prairie cordgrass has some degree of salt tolerance by conducting greenhouse germination and plant growth experiments.

Uses

The stiff stems, vigorous rhizomes, and robust size of this species are useful in stabilizing soil, dissipating wave energy, and providing cover.

- wetland restoration and enhancement
- streambank stabilization
- windstrip barrier
- filterstrip
- riparian buffer
- prairie landscaping

- wildlife habitat – nesting and cover
- forage – very early season only
- spillway and dam cover
- biofeedstock production

Ethnobotany
Native Americans used prairie cordgrass as a building material for shelters. The Ponca used it as thatching for roofs and as a fiber to support earth lodge structures. The Omaha also used it to build permanent villages of earth lodges (Kindscher and Noguera, 2002). Prairie cordgrass was also used by early European American pioneers as roof thatch and to cover haystacks and corn cribs (Weaver, 1954).

Status
Threatened or Endangered: Prairie cordgrass is assigned a State Rank of S2 – Imperiled in Washington State. Washington Natural Heritage Program defines imperiled species as being "at high risk of extirpation due to restricted range, few occurrences, steep declines, severe threats, or other factors" (WNHP, 2019). It is not a federally listed species (USFWS, 2021).

Wetland Indicator: FACW for Great Plains, Midwest, and Northcentral and Northeast regions; OBL for all other regions in which it occurs (USACE, 2018).

Weedy or Invasive: This plant may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed. Please consult with your local NRCS Field Office, Cooperative Extension Service office, state natural resource, or state agriculture department regarding its status and use.

Please consult the PLANTS Web site (http://plants.usda.gov/) and your state's Department of Natural Resources for this plant's current status (e.g., threatened or endangered species, state noxious status, and wetland indicator values).

Planting Guidelines
Vegetative propagation:
The strong rhizomes can be used for propagation. The ideal piece of vegetative material is a "J" hook piece of rhizome with buds and 2 to 12 inches of dry stem. Other rhizome pieces can be used if there are roots and at least one bud. The stem length is not critical for growth, but, if attached, makes planting and handling easier.

Vegetative Source:
- Local sites such as a ditch or wet meadow
- Nursery propagation bed material is usually more uniform, and plants tend to be larger and stronger making them easier to handle and improving survival

Harvest Date:
- Spring (early April-early June)
- Fall (dormant-October/November)-Rhizomes dug in the fall should be stored in controlled conditions of temperatures near freezing. Do not allow pieces to become dry or warm.

An ideal "J" hook rhizome planting unit. Photo taken at the USDA NRCS Bismarck Plant Materials Center, North Dakota

Harvest Method: Vegetative material can be dug by hand or with an undercutter, disk, or plow. Depth of digging will vary depending on site conditions. In older stands, the intertwined rhizomes are course, stiff, and have sharp buds. Material most easily processed is from younger growth found on the outside edge of an old stand or from newer plantings. Plants 2 to 3 years old would be the easiest material to handle and process. Once rhizomes are dug, pieces should be cut as described above. It is important to keep processed rhizomes cool and moist until planting.

Planting Method: Rhizomes should be planted with the shoot upright. Roots and at least part of the shoot should be buried. The average planting depth is 3 to 6 inches. Rhizomes have been successfully planted using a tree planted and by hand planting. Air space around the planted rhizomes should be removed by packing. Another method of establishment is to scatter the rhizomes, cover, and firm the planting bed.

Plant Spacing: This will vary depending on the purpose of the planting and site conditions. Recommended spacing between rows for seed increase fields and nursery beds is 6 to 15

feet. Suggested spacing within rows is 3 to 6 feet. For streambanks, riparian areas, and other erosion control sites, spacing will also vary depending on slope, stabilization required, mulch, and available plants and resources. Generally, plants are spaced 2 to 10 feet apart and planted in off-set rows. Rhizomes planted along streambanks should be planted several feet beyond the water line. Ice jams and fluctuating water can wash out plants closer to the water line. Rhizomes planted higher up the slope will readily send shoots down the slope toward the water line.

Seed Propagation:
Prairie cordgrass should be seeded as early in the spring as possible (Bush, 2000).
Seeding Method:

- Drill
- Broadcast

Seeding rate: Based on 183,000 seeds/lb, the following are general seeding rates. Actual rates will vary depending on site locations and purpose of planting. These recommendations are *guidelines* for establishment in the Northern Great Plains;

- 30 seeds/ft^2 [7 lbs Pure Live Seed (PLS)/acre]
- ¼ to 1 pound PLS/acre in wet meadow mixes

Seed head at harvest. Top glume longer than lower glume. Photo taken at the USDA NRCS Bismarck Plant Materials Center, North Dakota

Seeding Depth: ½ to ¾ inches (Houseal, 2007).

Seeding Viability: Viability of seed decreased when stored under high temperatures and humidity. In controlled storage, germination remains good for about 3 years. Current purity and germination tests (9 months or less) are needed for accurate seeding rates. Germination tests may be difficult to interpret, however, as there are no standardized testing procedures. Dormancy reported on seed tests should be considered in seed viability.

Seed Flowability: Debearded or deawned seed is more flowable, and seeding rate and placement is more accurate and consistent than for non-debearded (awned) seed. Native grass drills are the best units for planting this seed as they have positive feed mechanisms for chaffy seed and double disk furrow openers. If a suitable drill is not available or cannot be used due to terrain, then broadcasting the seed and tracking it in with a bulldozer is also an excellent planting method (Bush, 2000).

Seed Source: Most seed of prairie cordgrass are produced in the northern regions of North America. Insect predation inhibits seed production in more southern climates.

Red River Germplasm is the only known release with seed commercially available. Performance consistency in released material is greater than for local ecotypes. Seed can be purchased from native plant nurseries and commercial seed growers or can be harvested from local populations. Seed can be hand stripped or combined in late fall. Seed fill is often poor in native harvests. Filled seeds have a kernel or embryo. Cut seeds crosswise to determine fill.

Management
Seedling vigor is moderate, and seed often germinates throughout the course of the summer. Seedlings develop slowly. Stands are established more quickly by planting vegetative material compared to seeding. Adequate water at planting time is critical for establishment of seed and vegetative material. Once the stand is established, watering is less critical. Due to the rhizomatous growth and size of the plants, weed competition is not usually a problem in established stands. The first few years of establishment by seed may require weed control if heavily infested. Prairie cordgrass has few management needs. Mowing of prairie cordgrass more than once per season can reduce vigor.

Pests and Potential Problems
Pests do not appear to be a problem for vegetative material. Seed predation by insects is a problem in most areas except the extreme northern climates of the United States. Larvae of the tortricid moth (*Aethes spartinana*) feed on the florets of prairie cordgrass and have been found to be commonly responsible for floret damage and reduced seed yields (Prasifka et al., 2011).

Environmental Concerns
This plant may become weedy or invasive in some regions or habitats and may displace desirable vegetation if not properly managed. Please consult with your local NRCS Field Office, Cooperative Extension Service office, or State natural resource or agriculture department regarding its status and use. Weed information is also available from the PLANTS database.

Control
Please contact your local agricultural extension specialist or county weed specialist to learn what works best in your area and how to use it safely. Always read label and safety instructions for each control method.

Seeds and Plant Production
Seed production fields: Seed fields established from rhizomes will produce some seed the first year. Seed fields established from seed usually take 2 to 3 years before producing a seed crop. The seed typically matures within a week or two of frost (Bush, 2000). Seed can be combined after the first frost in northern regions and shattering is generally not a problem. Seed yields at the Bismarck, North Dakota Plant Materials Center have varied from 30 to 75 PLS lbs/acre with wide row spacing. Plantings used for seed production can become quite sod-bound after 5 years and seed production inhibited. Rhizomes will need to be separated by some means or a new field established.

Vegetative production fields: Rhizomes can be harvested from vegetative production fields for propagation using manual hand tools or more efficiently using standard agricultural nursery equipment such as an undercutter. Maintaining row spacing that suits harvest equipment size will ease the harvest process by preventing the production field from becoming sod-bound. Sod-bound production fields can prove more cumbersome to harvest and the propagules produced may be more difficult to process and divide.

Cultivars, Improved, and Selected Materials (and area of origin)
Red River Germplasm prairie cordgrass is a selection named and released by the Bismarck, North Dakota Plant Materials Center. It is a composite of plant materials from Grant County, Minnesota; Cass and Grand Forks Counties in North Dakota; and Day County in South Dakota. Select Class seed and vegetative material is available in the commercial market of this selection.

Atkins Germplasm prairie cordgrass is a selection named and released by the Manhattan, Kansas Plant Materials Center. Material for this release originated from Washington County, Nebraska. This is a Select Class vegetative release. There is no seed produced or available. Vegetative material is available for increase.

Kingston Germplasm prairie cordgrass is a selection named and released by the Big Flats Plant Materials Center, in Big Flats, New York. Material for this release originated from riparian areas and coastal areas, in Maine, New Hampshire, and Massachusetts. This is a Select Class vegetative release. There is no seed produced or available, currently. Vegetative material is available for increase.

Southampton Germplasm prairie cordgrass is a selection named and released by the Cape May Plant Materials Center, in Cape May, New Jersey. Material for this release originated from 3 areas around the Mecox Bay area, New York, in eastern Long Island. This is a Select Class release. Seed and vegetative material is available by contacting the Cape May Plant Materials Center, in Cape May, New Jersey.

Cultivars should be selected based on the local climate, resistance to local pests, and intended use. Consult with your local land grant university, local extension, or local USDA NRCS office for recommendations on adapted cultivars for use in your area**.**

Literature Cited

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Citation
Jensen, N.K. 2006. Plant Guide for prairie cordgrass (*Spartina pectinata* Bosc ex Link). USDA-NRCS, Bismark Plant Materials Center, Bismarck, ND.

Published: May 2006

Edited 24May06 jsp; 17Sep13 sec; 9Jul2021 scs

For more information about this and other plants, please contact your local NRCS field office or Conservation District at http://www.nrcs.usda.gov/ and visit the PLANTS Web site at http://plants.usda.gov/ or the Plant Materials Program web site: http://plant-materials.nrcs.usda.gov.

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